

6. Note on *Viverricula*. By St. G. MIVART, F.R.S.

[Received April 29, 1885.]

In 1882 I stated before this Society (see P. Z. S. 1882, p. 149) that *Viverricula* was distinguished from *Viverra* by having (amongst other characters) "a very small bald spot on the tibial side of the plantar pad." I am indebted to the kindness of Mr. Blanford, F.R.S., for calling my attention to the fact that this spot is really the homologue of the hallucal pad of *Viverra*, and I am therefore anxious to rectify the above-cited assertion.

There is indeed a striking difference between the feet of *Viverra* and *Viverricula*, as the much greater remoteness of this small hallucal spot from the large plantar pad causes the bald spot to be much more conspicuous in the latter genus, but its distinctness consists in its being more obvious and is not a distinctness of homology.

7. On the Right Cardiac Valve of the Specimens of *Apteryx* dissected by Sir Richard Owen in 1841. By E. RAY LANKESTER, M.A., F.R.S.

[Received April 25, 1885.]

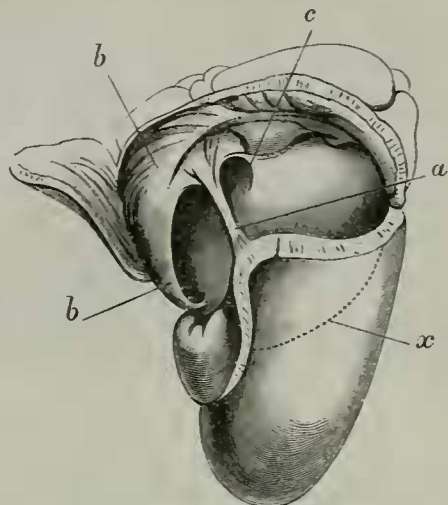
In a former communication¹ I showed that it was highly probable that the heart figured and described by Sir R. Owen in 1842, in the 'Transactions' of the Society, as the heart of an *Apteryx* was in reality the heart of an *Ornithorhynchus*. I based this opinion on the facts:—1. That the structure of the right cardiac valve as described and figured by Sir Richard more nearly resembled that of *Ornithorhynchus* than that of any other animal. 2. That in two hearts of *Apteryx* examined by Mr. Beddard and in one examined by myself, the structure of the right cardiac valve was precisely similar to that of an ordinary bird, and differed altogether from Sir Richard Owen's description and figure. 3. That in the College of Surgeons Museum there was a heart of *Ornithorhynchus* with the right cardiac valve displayed much as in Sir Richard Owen's figure of a supposed *Apteryx*-heart, and that on this preparation was painted the name *Apteryx australis*. 4. That this heart—actually of *Ornithorhynchus* but labelled "*Apteryx*"—was entered in the Catalogue as the heart of *Apteryx australis*, the entry having been made apparently at a date corresponding to the time when Sir Richard was Hunterian Curator.

Sir Richard Owen has since communicated to the Society a note, in which he expresses himself as unable to accept the explanation which I have suggested of the fact that the right cardiac valve of *Apteryx* as described by him differs so completely from that structure as seen by Mr. Beddard² and myself in other specimens. He

¹ P. Z. S. 1885, p. 239.² Cf. P. Z. S. 1885, p. 188.

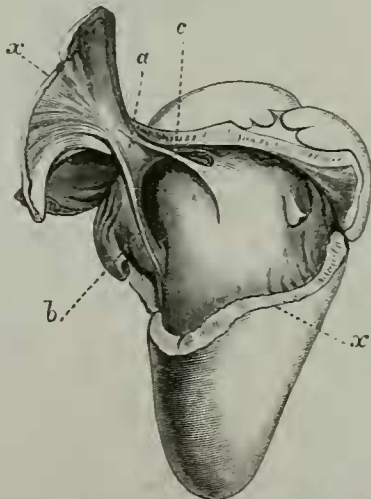
states that he dissected at the period in question (more than forty years ago) three specimens of *Apteryx*; and if I understand him

Fig. 1.

Heart of the Common Fowl (*Gallus domesticus*).

The right ventricle is opened by a nearly horizontal cut which runs above (*i. e.* nearer the auriculo-ventricular ring than) the insertion of the muscular band (=musculus papillaris) into the free wall of the ventricle. The dotted line *x* indicates the course of a subsequently effected cut which set free the part of the ventricular wall into which the muscular band is inserted, and allowed the band to be reflected, as shown in fig. 2.

Fig. 2.



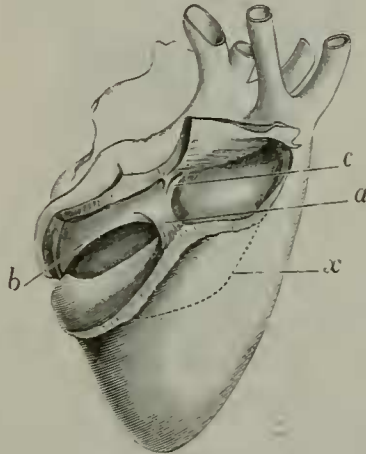
The same heart as that drawn in fig. 1; the cut *x* having now been made, and the ventricular wall with the attached muscular band *a* reflected.

right, he is inclined to believe that no mistake occurred in connection with his drawings or preparations, and that the hearts of his three

specimens did actually present the characters of structure in the right cardiac valve which he described and figured.

Fortunately Sir Richard Owen's specimens of *Apteryx* are still in

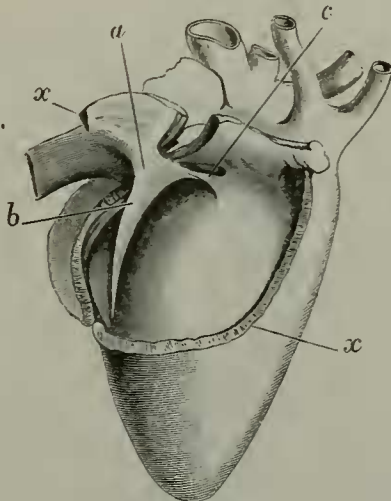
Fig. 3.



Heart of *Apteryx australis*, Ow., with the right ventricle opened as in the Common Fowl's heart drawn in fig. 1.

The muscular band *a* has the same relations as in fig. 1, but is shorter and broader, owing to the contraction of the specimen in alcohol. The dotted line *x* indicates the course of the cut which was subsequently made and allowed the reflection of the ventricular wall, as shown in fig. 4.

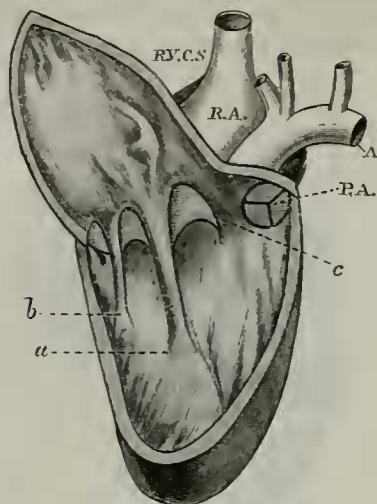
Fig. 4.



The same heart as that drawn in fig. 3. The cut along the dotted line *x* of fig. 3 has been effected, and the ventricular wall with the attachment of the muscular valve reflected.

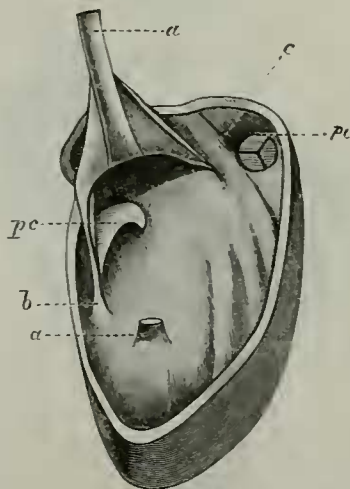
existence, and have been exhumed by Dr. Garson from among the stores of the Museum of the Royal College of Surgeons. Dr.

Fig. 5.

Heart of *Ornithorhynchus*.

The right ventricle opened so as to expose the right cardiac valve. There is no connection here of the great anterior muscular band (*a*) of the valve with the free wall of the ventricle. It arises entirely from the septal wall. The distinction is not a fundamental one; the muscular band *a* in figs. 5 and 6 is to be identified with the muscular band *a* of the Birds' hearts (figs. 1 to 4). Similarly the much shorter muscular band or fold *c* in the Birds' hearts appears to be the same structure as the band marked *c* in the present figure of the right cardiac valve of *Ornithorhynchus*.

Fig. 6.



The same heart as that drawn in fig. 5, with the great anterior muscular band (*a*) cut through, so as to allow the valve to be reflected, for comparison with the similar views of the heart of the Fowl, fig. 2, and the heart of *Apteryx*, fig. 4.

Letters in all the figures.

- a*. The large anterior muscular band passing from the free margin of the valvular flap to the ventricular wall (this is the great anterior musculus papillaris of Mammals). *b*. The muscular flap of the Birds' valve. *c*. The small left muscular band of attachment from the valve to the ventricular wall (left or "conus" musculus papillaris of the Mammal).

Garson has written me as follows in regard to these specimens, and has very kindly afforded me an opportunity of examining them. The result is conclusive, since I am now able to show what is the condition of the right cardiac valve in the actual specimens *dissected* by Sir Richard Owen, having previously shown what was the origin of the heart *figured* by him.

Dr. Garson writes:—

“Royal College of Surgeons of England,
April 23, 1885.

“Dear PROF. LANKESTER,

“I forward you a specimen of *Apteryx* partially dissected by Prof. Owen, in which the heart is *in situ* but opened into, and I also send another specimen of *Apteryx*-heart taken from a bottle in which are preserved the viscera and other parts of an *Apteryx* dissected by Prof. Owen, and which he had treated with acid so as to soften the bones. The auricle of this second specimen is opened. We have a third specimen of *Apteryx* partly dissected, in which the heart is untouched, and so cannot have been used for the drawing showing the interior.

“I do not think the illustration is taken from either of the specimens I send you; consequently if Sir Richard Owen says he had only three specimens of the bird, there is conclusive proof that the heart of some other animal has been figured for *Apteryx*.

“I should be greatly obliged if you would kindly let us have back the specimens as soon as you have finished with them,

Believe me,

Yours very truly,

J. G. GARSON.”

The specimens forwarded by Dr. Garson were examined by me in the presence of Assistant-Professor Bourne, of University College. In the first (that *in situ* in a dissected *Apteryx*) the left ventricle had been horizontally cut, and an oblique cut had been effected in the extreme left region of the right ventricular wall. But this cut was not such as to render the right cardiac valve visible, still less would it have been possible to make, from this specimen, the figure published by Sir Richard in 1842.

Similarly impossible was it for any information with regard to the right cardiac valve to have been derived from the second specimen, since the wall of the ventricle was uncut.

Since the third specimen of *Apteryx*-heart in the College of Surgeons store-collection is unopened in any way, we may accept Dr. Garson's conclusion that the drawing published by Sir Richard Owen in 1842 was not made from any one of these specimens; and since they are the three specimens of *Apteryx* which were at Sir Richard's disposal, and seeing that according to his statement he had no other specimens of the *Apteryx*, the drawing in question cannot have been taken from an *Apteryx*-heart.

Lastly, I have had the interesting opportunity of seeing *what actually is* the condition of the right cardiac valve in two out of three of Sir Richard's original specimens. The third specimen, which has

never been opened, is still available in case of a final appeal. I would suggest that if there is any one still in doubt on the subject, any one who still thinks that the right cardiac valve of *Apteryx* differs from that of ordinary birds and is provided with chordæ tendineæ attached to membranous flaps, he should be asked to open Sir Richard Owen's hitherto unpenetrated third specimen at a meeting of this Society.

The first and the second specimens I have opened by an appropriate incision in the right ventricular wall, in the presence of Professor Bourne, and had no difficulty in bringing the right cardiac valve in each heart into full view. It presented none of the peculiar features attributed by Sir Richard Owen to the right cardiac valve of these identical specimens which Sir Richard believes himself to have examined, but which neither he nor any one else had seen until I opened up the ventricular wall to-day (April 24th, 1885). The valve was entirely fleshy as in an ordinary bird (compare figs. 1, 2, with figs. 3, 4). There were no radiating fibrous cords binding the mid-region of the valve to the ventricular wall, such as are shown in Sir Richard Owen's drawing. There was no departure from the typical Avian right cardiac valve; no such departure has been seen in any specimen of the *Apteryx*-heart which has been opened.

It seems important that the actual condition of the right cardiac valve in *Apteryx* should be represented pictorially, and I therefore give here two drawings of that structure taken from the specimen in my possession (figs. 3 & 4, p. 479), and also for comparison, two views of the right cardiac valve of the Common Fowl (figs. 1 & 2, p. 478), and of the *Ornithorhynchus* (figs. 5 & 6, p. 480) for comparison.

May 19, 1885.

F. Du Cane Godman, Esq., F.R.S., F.Z.S., in the Chair.

A communication was read from Prof. J. von Haast, C.M.Z.S., containing a description of some fossil remains of a species of *Dinornis* remarkable for its small size, and apparently previously undescribed, which he proposed to call *Dinornis oweni*. The remains in question, at present deposited in the Auckland Museum, had been obtained near Whangarei, New Zealand. Prof. von Haast added some remarks on *Dinornis crassus*, Owen.

This paper will be printed entire in the Society's 'Transactions.'

The Secretary read the following extract from a letter addressed to him by the Rev. G. H. R. Fisk, C.M.Z.S., dated Breakwater, Cape Town, January 27th, 1885 :—

"I wish to mention that a Snake was taken amongst the rocks in a pool of water and seaweed at the entrance to Table Bay, which, from the description given of it by those who found it, I have every reason to believe was a '*Pelamis bicolor*.' It was found by the